PulmoneticSystems®

Innovations For Life

Pulmonetic Systems, Inc.
17400 Medina Rd., Suite 100
Minneapolis, Minnesota 55447-1341
Website: www.pulmonetic.com

PulmoneticSystems®

Innovations For Life

Universal Power Supply Operator's Manual

P/N 14492 Rev C

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Revision History

Revision	ECO	Date	Changes
A	2804	12/15/03	Initial production release
B	2863	02/12/04	Added 93/42/EEC MDD requirements and European representative
C	3409	10/19/05	Reference ECO 3409 for detailed change information

Warranty

The Pulmonetic Universal Power Supply, is warranted to be free from defects in material and workmanship for a period of one year from date of purchase.

The battery is warranted to be free from defects in material and workmanship for a period of 90 days from the date of purchase.

Pulmonetic Systems Inc. will, at its option, either repair, replace, or issue credit for products that prove to be defective during the warranty period.

For warranty service or repair, the product must be returned to Pulmonetic Systems or a service facility designated by Pulmonetic Systems, shipping prepaid by the Buyer

Limitation of Warranty

Normal maintenance, as specified in the LTV Universal Power Supply Operator's Manual, is not covered under the forgoing warranty.

The forgoing warranty does not apply to defects resulting from:

1) Improper or inadequate maintenance of the unit;
2) Improper use or misuse of the unit;
3) Unauthorized modifications or repair to the unit;
4) Use of the unit with unauthorized accessories;
5) Operation of the unit outside the specified environment.

Limitation of Liability

Pulmonetic Systems, Inc., shall not be liable for loss of profits, loss of use, consequential damages, or any other claim based on breach of warranty. Pulmonetic Systems, Inc.'s liability for damages of any kind shall be limited to the purchase price of the defective unit.

Contact Information

Pulmonetic Systems, Inc.
17400 Medina Road, Suite 100
Minneapolis, MN 55447-1341
Phone: 800-754-1914

Website: www.pulmonetic.com

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Copyright

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For information contact:

Pulmonetic Systems, Inc.
17400 Medina Rd., Suite 100
Minneapolis, Minnesota 55447-1341
Phone: (763) 398-8300
Customer Care Center: (800) 754-1914
Fax: (763) 398-8400
E-mail: info@pulmonetic.com
Website: http://www.pulmonetic.com

Trademarks

All product names or brands referred to in this document are trademarks, registered trademarks or trade names of their respective holders.

Radio Frequency Energy

The UPS can radiate radio frequency energy. It has been tested and complies with limitations as specified in IEC 601-1-2 for Medical Products which provide some protection against interference when operated in accordance with the instructions in this manual.

Electromagnetic Fields

This equipment contains components that can be affected by intense electromagnetic fields. It's function may be adversely affected by the operation of other nearby equipment, such as high frequency surgical diathermy equipment, short-wave therapy equipment, defibrillators or MRI equipment.

Universal Power Supply (UPS) Intended Use

The Pulmonetic Systems UPS is a portable, re-chargeable, external power supply intended for use solely with Pulmonetic Systems Ventilators and Graphics Monitors. It is suitable for use for acute or sub-acute care, patient transport and homecare settings and for intra-hospital use.

The UPS has no direct patient interface. It provides users with an AC derived DC power source that is automatically backed up with a 12 volt battery.

Notes

National and International Standards

The Pulmonetic Systems Universal Power Supply is designed to meet the requirements of the following standards.

Standard	Description
IEC 60601-1-1	Medical Electrical Equipment, Part 1: General Requirements for Safety
IEC 60601-1-2	Medical Electrical Equipment, Part 1: General Requirements for Safety - Collateral Standard: Electromagnetic Compatibility - requirements and tests, second edition
July 1995	FDA Draft Reviewers Guidance for Ventilators
UL 2601	Underwriters Laboratories standards - Medical Electrical Equipment, Part 1: General Requirements for Safety
CSA 22.2 No 601.1-M90	Medical Electrical Equipment, General Requirements for Safety
ISTA 2A	International Safe Transit Association shipping requirements
IEC 60068-2-27	Shock testing method
IEC 60068-2-64	Vibration testing method
IEC 60068-2-29	Bump testing method
MIL-STD-810E	Shock & Vibration testing per method 516.4

Nominal Settings

The ventilator operating settings in table 1 are utilized for battery duration tests. The battery draws 3.5 A when the ventilator is operated per table 1.

Table 1

Parameter	Setting
O2 Source	None
Lung Compliance L/cmH2O)	0.032
ET Tube Resistance (cmH2O/l/s)	RP 5
Mode	Volume Mode with Assist/Cntrl
Breath Rate (bpm)	15
Inspiratory Time (sec)	1.5
PEEP	5
Sensitivity (lpm)	2
Tidal Volume (ml)	800
% O2	21
High Pressure	100
Low Minute Volume	Min

Declaration of Conformity

This medical equipment complies with the Medical Device Directive, 93/42/EEC

Classification

Type of Equipment: Medical Equipment, Class 2 type BF

Manufacturer:

Pulmonetic Systems, Inc.

17400 Medina Rd., Suite 100

Minneapolis, Minnesota 55447-1341

USA

European Representative:

The European Representative for vigilance reporting within the European Community for Pulmonetic Systems, Inc. is:

MediMark® Europe Sarl.

11, rue Emile Zola. BP 2332

F-38033 Grenoble Cedex 2. France

Tel: +33 (0)4 76 86 43 22

Fax: +33 (0)4 76 17 19 82

E-mail: info@medimark-europe.com

Any product issues that fall under Medical Device Directives Essential Requirements should be directed to MediMark.

Safety Information

Review the following safety information prior to operating.

Operating this device without a complete and thorough understanding of its attributes is unsafe. It is important that this manual be read and understood in its entirety before operating the UPS with a ventilator.

Any questions regarding installing, operating, or maintaining the UPS should be directed to Pulmonetic Systems, Inc. using the contact information shown here.

Contact Information:

Pulmonetic Systems, Inc.
17400 Medina Rd., Suite 100
Minneapolis, Minnesota 55447-1341
Phone: (763) 398-8300
Customer Care Center: (800) 754-1914
Fax: (763) 398-8400

E-mail: info@pulmonetic.com

Website: http://www.pulmonetic.com

Document Conventions:

For clarity, the following written conventions are used throughout this manual:

Bold Text: Words that appear in bold text typically represent text as it appears on the device itself, or is also occasionally used as emphasis.

Italicized Phrases: Phrases that are shown in italics cross-reference other sections of the manual, or other documents, where the associated subject matter is addressed in greater depth.

⚠ WARNINGS

Bold heading. Double boxed text. Alert the reader to potentially hazardous situations which, if not avoided, could result in death or serious injury.

CAUTIONS

Bold Heading. Single boxed text. Alert the reader to potentially hazardous situations which, if not avoided, could result in equipment damage.

NOTES

Single boxed text. Contain additional information to assist in the proper operation of the device.

Appendix B - Specifications

Electrical

AC/DC Converter

AC Input Voltage, Class 1 Grounded ..... 100 to 240 VAC
AC Input Frequency ..... 47 to 63 Hz
DC Output Voltage #1 ..... 13.0 VDC +/- 15% DC
Output current #1, Continuous operation ..... 7.5 A max

Back-up Battery

Chemistry ..... Sealed lead acid
Battery Voltage ..... 12 V
Battery Capacity ..... 20 Ahr (20 hour rate)

Connectors

AC Input Connector - Standard IEC-320 Male Socket.
AC Power Cord - detachable cord terminated with IEC-320 female plug
DC Output Connector - 3-position audio female socket with latch-lock
DC Output Cord - detachable cord, terminated with 3-position audio male plug

Physical

Size - < 425 cubic inches
Weight - < 22 lbs

Environmental

Operating Conditions

Ambient Temperature - 5 degrees C to 40 degrees C
Humidity - 15% to 95% Relative, non condensing

Storage Conditions

Temperature: -20 degrees C to +60 degrees C
Humidity: 15% to 95% Relative, non condensing

Surface Temperature

The external surfaces of the UPS unit shall not exceed 45 degrees C at an ambient temperature of 35 degrees C

Warnings and Cautions

General warnings and cautions, which apply any time you use the Universal Power Supply (UPS) are listed here.

Specific Warnings and Cautions appear as boxed text throughout this manual where they are most meaningful. Read these warnings carefully before operating the UPS.

⚠ WARNINGS

- **Injury or device malfunction -** Do not allow any liquids to enter the UPS. Personal injury and/or internal damage to the UPS may result.
- **Risk of Electric Shock -** To reduce the risk of electrical shock and damage to the UPS or the Ventilator, do not expose to snow, rain or moisture of any kind.
- **Risk of personal injury -** The UPS battery contains caustic materials. Do not operate the device if has been dropped or damaged in any way.
- **Risk of personal injury -** Only use the UPS in a well ventilated area.
- **Risk of electric shock -** To reduce the risk of electrical shock always disconnect the UPS from the ventilator and the AC power source prior to cleaning.
- **Risk of patient injury -** To ensure continued ventilation support, it is recommended that an alternative means of supplying external power to the ventilator be available at all times.
- **Risk of personal injury -** If battery acid contacts skin or clothing, wash immediately with soap and water. If acid contacts eyes, flush immediately for at least ten minutes with running cold water and get medical attention immediately.
- **Risk of Fire -** Never expose the UPS to a flame or spark.
- **Risk of Explosion -** Never charge a frozen UPS, or UPS battery. Always bring the battery to an ambient temperature of 41° F (5° C) to 100° F (38° C). The UPS must be allowed to acclimate to an ambient temperature of 41° F (5° C) to 100° F (38° C) prior to plugging it in.
- **Risk of electric shock -** In the event of a loss of electrical protective ground, touching the device could result in electrical shock. To ensure grounding, use only the unmodified power cord supplied with the device and connect it to a properly wired and grounded electrical power outlet. Do not use a worn or damaged power cord,
- **Risk of electric shock** - Do not allow a wrench or conductive object to make simultaneous contact with the positive (**+**) and negative (**-**) battery terminals. Do not allow the battery terminals to make contact with the metal UPS enclosure. This could cause personal injury or damage to the UPS.
- **Risk of Electrical Shock -** Do not attempt to operate the UPS if any of its covers are removed.

⚠ WARNING

- **Risk of Electrical Shock -** Do not touch the UPS AC Power socket contacts within 1 second of disconnection from an AC power source.
- **Service and Repair -** To avoid device malfunction and possible injury, refer all servicing or repair of the UPS to Pulmonetic Systems, Inc. Do not attempt to remove device covers.

CAUTION

- **Unauthorized parts:** Do not use parts that have not been authorized for use with the UPS. Using unauthorized parts may damage the UPS and/or the ventilator.
- **Read all instructions:** Before operating the UPS read this manual and all instructions, warnings, cautions and notes on the UPS and the ventilator. Inappropriate or incorrect usage can cause damage to the device.
- **Power Cords**: Keep the UPS power cords clear of walkways or traffic areas. Never allow the cords to drag on the floor or create an obstruction.
- **UPS or Ventilator damage**: When connecting the UPS to a ventilator, use only the approved cables and connectors specified in this Manual. Pulmonetic Systems cables are pre-wired and properly terminated to ensure correct connection
- **Damage to connectors:** To avoid damaging the ventilator or the UPS connectors, press the release button on the bottom of the connector before removing it from the ventilator.
- **Damage to plastics:** Do not use cleaning agents that contain phenols, ammonium chloride, chloride compounds, or more than 2% glutaraldehyde. These agents may damage plastic components. Do not use harsh abrasives when cleaning the UPS.
- **Equipment Damage:** Never immerse the UPS or its power cords in liquid sterilizing agents or liquids of any kind. Check with the manufacturer of all cleaning chemicals and sterilizing equipment to ensure safe handling procedures are followed.

Appendix A - Contact and Ordering Information

To order replacement parts contact Pulmonetic Systems at one of the numbers or addresses given below. You will be directed to the appropriate department:

Contact Information

Pulmonetic Systems, Inc.
17400 Medina Rd., Suite 100
Minneapolis, Minnesota 55447-1341

Main Office: (763) 398-8300
Toll-Free: (866) 752-1438
Fax: (763) 398-8400

Customer Care: (763) 398-8500
Toll-Free: (800) 754-1914
Fax: (763) 398-8403

E-mails:
info@pulmonetic.com (for information)
service@pulmonetic.com (for Technical Support or Service related issues)

Website: http://www.pulmonetic.com

Ordering Information

The following replacement parts are available: from Pulmonetic Systems, Inc.

Part Number	Description
10536	UPS AC Power Cable
17352-001	UPS DC Power cable
17894-001	UPS Replacement Battery Kit

Symptoms	Possible Causes	What to Do
The AC connector will not insert correctly into the receptacle on the UPS.	The connector pins are bent or misaligned	Replace the AC power cord.
	There is dirt or debris in the connector preventing the connector from seating correctly in the receptacle	Unplug from the mains electrical supply and check each connector. Use a low flow air source to blow out the connector if necessary or wipe with alcohol. Dry thoroughly before re-connecting
One of the connectors on the DC cord will not insert correctly either into the receptacle on the UPS or into the ventilator DC input.	The connector pins are bent or misaligned. The quick release lock on the connector has been damaged	Replace the DC cord
	Dirt or debris in the connector is preventing it from seating correctly.	Unplug the UPS from the mains electrical supply and check each connector. Use a low flow air source to blow out the connector if necessary or wipe with alcohol. Dry thoroughly before re-connecting.
The ventilator External Power status LED is not illuminated when attached to the UPS.	The UPS battery does not have sufficient charge to power the ventilator.	Put the UPS through a complete charge cycle and reconnect
	One or other of the DC connectors is not properly locked into place.	Check all connections.
	Dirt or debris in one or other of the DC connectors (either at the UPS or at the ventilator DC Input) is preventing a positive connection.	Unplug from the mains electrical supply and check each connector. Use a low flow air source to blow out the connector if necessary or wipe with alcohol. Dry thoroughly before re-connecting.

Symbols

Symbol	Compliance	Title	Application
	ISO 3864 Symbol B.3.1	Attention, refer to accompanying documents	Directs the user to instruction necessary for safe operation
	IEC 417 Symbol 5016	Fuse	Indicates the location of fuses on the device
	IEC 417 Symbol 5019	Protective Earth (ground)	Identifies an electrical termination intended for connection to a protective conductor in the case of a fault
	IEC 417 Symbol 5333	Type BF Equipment	To indicate a level of compliance to IEC 601
	IEC 417 Symbol 5031	Indicates Direct Current	Displays on the Rating Plate that the equipment is suitable for direct current and to identify the applicable terminals.
	IEC 417 Symbol 5032	Indicates a source of Alternating Current	Displays on the rating plate that the equipment is suitable for Alternating Current and identifies the applicable terminals
IPX1	IEC 529	Indicates Enclosure Protection	
	En 980	Indicates the Date of Manufacture	Shows the Month (XX) and date (YYYY) of manufacture.

Chapter 4 - Troubleshooting

Symptoms	Possible Causes	What to Do
The green AC Power LED on the front of the UPS does not illuminate when the UPS is connected to an AC power outlet.	The AC cord connection is not secure.	Check that the AC connector is fully seated into the receptacle on the UPS. Loosen the Strain relief, push the connector in and re-tighten the strain relief screw.
	One or more of the AC connectors has dirt or debris inside preventing a good connection.	Unplug from the mains electrical supply and check each connector. Use a low flow air source to blow out the connector if necessary or wipe with alcohol. Dry thoroughly before re-connecting
	If the green AC Power is not illuminated but the yellow Charge Status LEDs continue to increment, the Green LED could be faulty or failed.	Call Pulmonetic Systems Technical Support for a replacement.
The yellow Battery Charge Status LEDs do not illuminate and/or the UPS does not charge	The AC cord connection is not secure.	Check that the AC connector is fully seated into the receptacle on the UPS. Loosen the Strain relief, push the connector in and re-tighten the strain relief screw.
	One or more of the AC connectors has dirt or debris inside preventing a good connection.	Unplug from the mains electrical supply and check each connector. Use a low flow air source to blow out the connector if necessary or wipe with alcohol. Dry thoroughly before re-connecting
	There is a problem with the LED array or the charging system.	Call Pulmonetic Systems, Inc.

Chapter 1 - Introduction and Overview

The Pulmonetic Systems Universal Power Supply (UPS) is designed for use with Pulmonetic Systems ventilators and associated graphics monitors. It is a portable, re-chargeable external power source with the following features:

- AC/DC converter
- Backup battery charger
- AC power status LED indicator
- Backup battery charge status LED indicator
- Audible alarm sounds when the UPS switches to backup battery mode
- LED status indicator flashes when UPS is in backup battery mode
- AC power input (AC power cord supplied)
- DC power output (DC cordset supplied to connect to Pulmonetic Systems ventilators)

It is important to read and understand this manual before attempting to use the UPS.

If you have a question or a problem at any time or if you require additional information, contact Pulmonetic Systems, Inc. at:

Pulmonetic Systems, Inc.

17400 Medina Road, Suite 100
Minneapolis, MN 55447-1341

Main Phone: 763-398-8300

Customer Care: 800-754-1914 or
763-398-8500

Fax: 763-398-8400

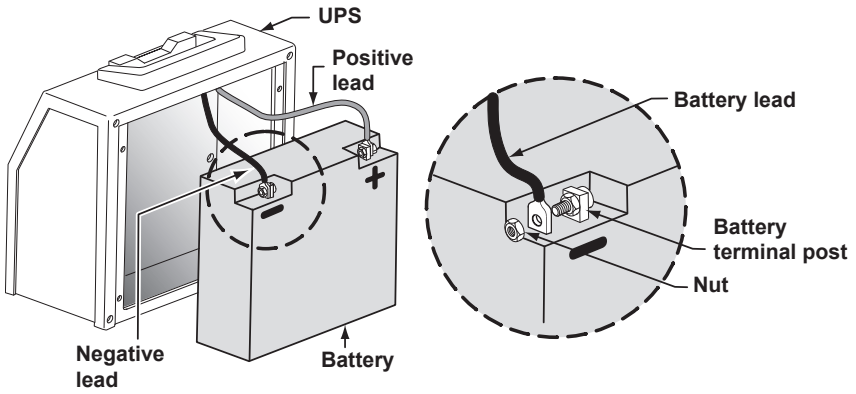
e-mail: service @ pulmonetic.com
website: www.pulmonetic.com

3) Gently lift the battery out of the UPS enclosure.

CAUTION

Battery leads - To avoid damaging the UPS battery leads, do not apply pressure to the leads or their crimped lugs when loosening or tightening the battery lead retaining nuts.

4) Use the 3/8" wrench to loosen the nut securing the black battery lead to the negative (-) battery terminal; then remove the nut and black battery lead from the battery terminal (see Detail).



5) Use the 3/8" wrench to loosen the nut securing the red battery lead to the positive (+) battery terminal; then remove the nut and red battery lead from the battery terminal (see Detail).

Battery Replacement

If after recharging a battery for the full charge time of 5 to 6 hours, only three of the five Battery Charge Status LEDs are illuminated, or if the battery back-up time is noticeably shorter than usual, the battery has degraded to a state where it requires replacement. Contact Pulmonetic Systems Customer Service for a replacement battery kit.

Instructions for removing and replacing the battery are supplied with the replacement battery kit.

If a new battery has only one or two yellow Charge Status LEDs illuminated after 18 hours of charging, it indicates that there may be a problem with either the battery or the charging system. Disconnect the UPS and contact Pulmonetic Systems Technical Support. (See Contact Information at the front of this manual)

NOTE

The Pulmonetic Systems Universal Power Supply (UPS) uses a sealed lead acid battery. Some authorities consider these hazardous materials subject to special disposal restrictions. Contact your local authority for information on permissible methods of disposing of used batteries.

Long Term Storage

If the UPS will not be connected for more than a month, Disconnect the battery as shown below..

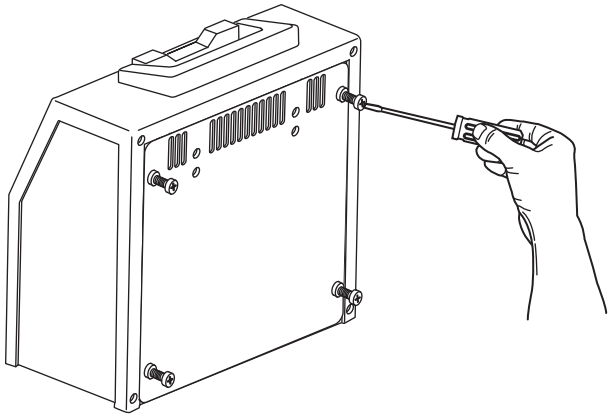
Tools

You will require a 3/8” wrench to loosen the terminal nuts and a medium (#1) Phillips screwdriver to remove the back panel.

> ⚠ **WARNING**
>
> **Risk of electrical shock** - Do not allow any wrench or conductive object to make simultaneous contact with the positive (+) and negative (-) battery terminals.

To disconnect the Universal Power Supply (UPS) Battery:

1) Unplug the UPS AC cord from the AC power outlet; then disconnect the UPS DC cord from your ventilator.
2) Using a Phillips-head screwdriver, loosen the four screws securing the back panel to the UPS and remove the back panel.



> ⚠ **WARNING**
>
> **Battery Terminals** - Do not allow the battery terminals to make contact with the metal UPS enclosure. Allowing the battery terminals to make contact with the enclosure can result in damage to the UPS and/or personal injury due to electrical shock or burns.

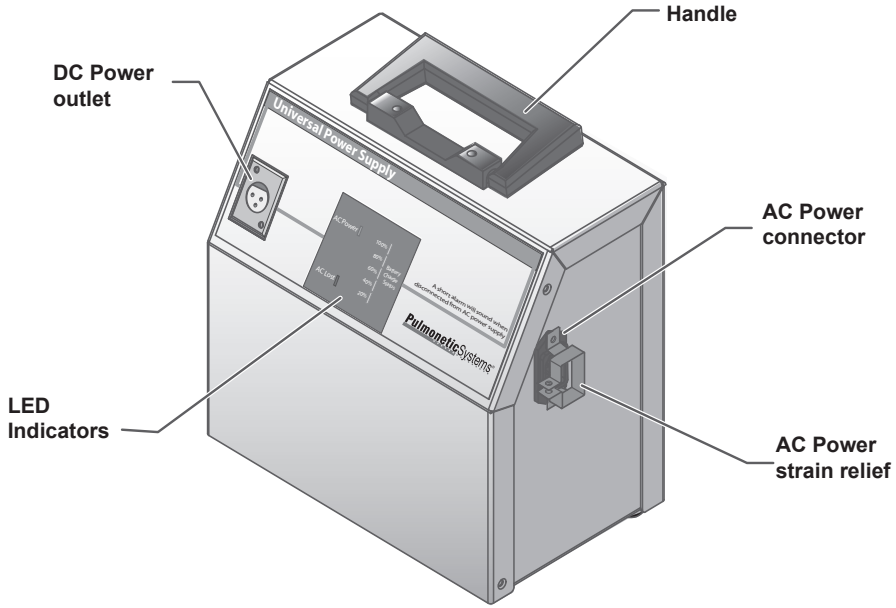
Chapter 2 - Unpacking and Setup

This section describes the individual components of the Universal Power Supply (UPS). It covers how to unpack and inspect them to verify that they are operating correctly.

With your UPS you should receive the following items:

- AC power cord
- DC power cord
- UPS with rechargeable battery
- Operator’s Manual

If you do not receive these items contact Pulmonetic systems as shown in *Appendix A*

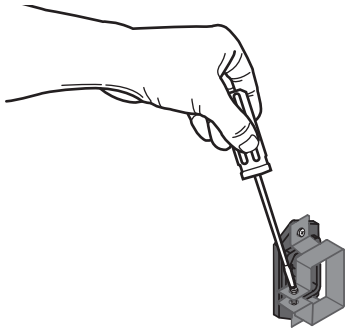


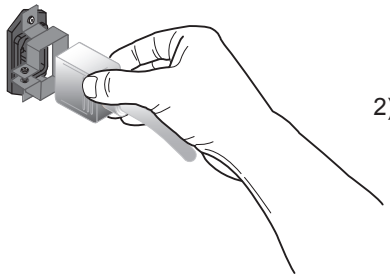
Connecting the AC Power Cord

The Universal Power Supply (UPS) is supplied with a ten-foot AC Power Cord with a three-pin receptacle for connection to the UPS and a three-pin plug for connection to a properly grounded AC supply socket

To attach the AC Power Cord to the UPS:

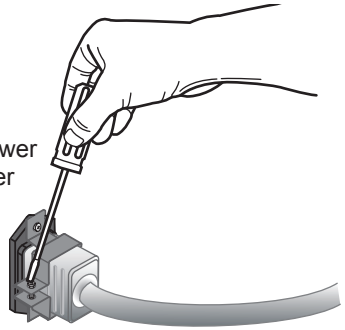
1) Using a Phillips screwdriver, loosen the screw on the cord clamp attached to the power input on the side of the UPS.





2) Insert the female 3 pin connector on the AC Power Cord into the receptacle on the side of the UPS.

3) Tighten the screw on the clamp to secure the AC Power Cord to the Universal Power Supply.



NOTE

Make sure that the AC power cord connector is fully seated before tightening the cord clamp .

Chapter 3 - Care and Maintenance

Maintenance and Cleaning

Maintenance

The Universal Power Supply (UPS) is designed to operate for extended periods of time with no routine maintenance. Maintenance or repair other than battery replacement should be conducted by Pulmonetic Systems, Inc. only.

For assistance contact Pulmonetic Systems, Inc.

Pulmonetic Systems, Inc.
17400 Medina Rd., Suite 100
Minneapolis, Minnesota 55447-1341

Phone: (763) 398-8300
Customer Care Center: (800) 754-1914
Fax: (763) 398-8400
E-mail: info@pulmonetic.com
Website: http://www.pulmonetic.com

Cleaning

To clean the outside of the UPS case, unplug the UPS from the AC power supply and wipe the exterior with a dampened cloth. Do not use any harsh abrasives. Do not allow any liquid to enter the UPS.

⚠ WARNING

Electric Shock - Do not allow any fluids to enter or pool on the UPS. Injury due to electric shock or damage to the UPS may result

Storage

Short Term Storage

During short periods of disuse, the UPS should remain connected to an AC source to maintain the battery charge.

CAUTION

Battery discharge - Do not leave the UPS connected to your ventilator during storage. If not connected to a valid AC power source, the UPS battery will deplete at a rate of approximately 10% per month.

Charging the Universal Power Supply (UPS)

The UPS should be synchronized and charged to full capacity as detailed below, before being used to power the ventilator.

> ⚠ **WARNING**
>
> **Electric Shock** - In the event of a loss of the protective electrical ground, touching the UPS could result in electric shock. To ensure proper grounding, use only the *unmodified* power cords supplied with your UPS, maintained in good condition and connected to a properly wired and grounded power outlet

When the UPS battery is first installed, the actual charge in the battery and the Battery Charge Status LED display may not be correctly synchronized. To ensure the accuracy of the LED display, once it has been installed, the battery should be discharged and then fully recharged as follows:

1) Connect the UPS DC cord to the ventilator, do not plug in the AC power. Allow the ventilator (powered on, using any settings) to discharge the UPS battery until the ventilator external power indicator is no longer lit. At this point, the ventilator initiates a Power Lost alarm and switches its operational power source to its internal battery.
2) When this occurs, power down the ventilator and disconnect the UPS. Connect the UPS to a properly wired and grounded AC power outlet.
3) Allow the UPS battery to re-charge for six (6) hours to ensure full backup power is available. All five yellow Battery Charge Status LED's are illuminated when the battery is fully charged.
4) Doing this ensures that the Battery Charge Status LEDs accurately reflect the actual charge status of the battery. The UPS is now ready for use.

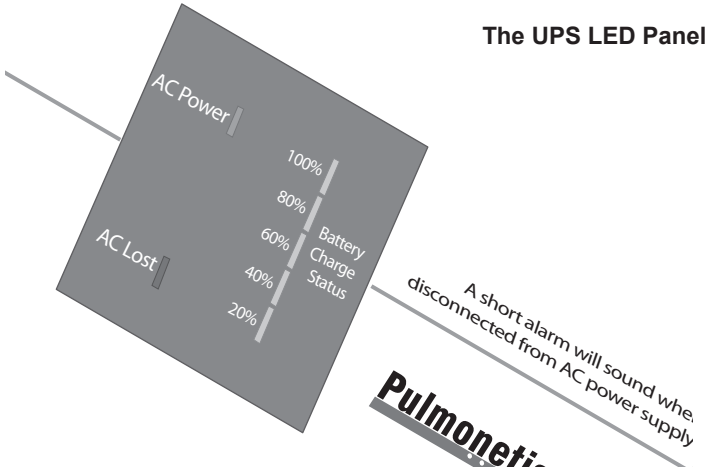
Status Indicators

The LED status indicators on the front panel of the UPS illuminate as follows.

- The green **AC Power** and yellow **Battery Charge Status** LEDs together indicate that the UPS is receiving AC power and is charging its battery.
- When the UPS battery is fully charged, all five Yellow **Battery Charge Status** LEDs are lit. Each LED indicates an increment in charge of 20 percent.
- If the amber **AC Lost** LED lights and the green **AC Power** LED goes out, the UPS has lost AC power and is in backup mode. The **AC Lost** LED flashes and an audible signal sounds when the UPS enters backup mode. The LED continues to flash once every second until AC Power is restored or until the UPS battery is fully discharged.

> **NOTE**
>
> Once charged, the UPS battery will receive a float charge while connected. When not used for short periods of time, it should be left plugged into the AC outlet to keep the battery fully charged.

The UPS LED Panel



Charge Time

The Universal Power Supply (UPS) charge time depends upon how deeply it has been discharged. Generally, the 12V/20Ah battery should be fully charged within five to six hours.

Cycle Life

The cycle life (number of cycles before the battery degrades) of the UPS is determined by a number of factors, one of which is the depth of discharge the UPS regularly encounters. The less a UPS is discharged before being recharged, the longer it will last.

Expected battery life

Several factors affect the life of the UPS battery including temperature, length of storage, and the amount of discharge during each cycle (see Cycle Life). A fully charged UPS battery will provide a minimum of four hours backup time to the LTV ventilator and a minimum of three hours backup time to the LTV ventilator and an LTM graphics monitor at nominal settings.

The UPS battery capacity decreases as the ambient temperature drops at a rate of approximately 3% every 10 degrees Fahrenheit. The total number of cycles available from each battery depends upon how deep the battery is continually discharged (see cycle life).

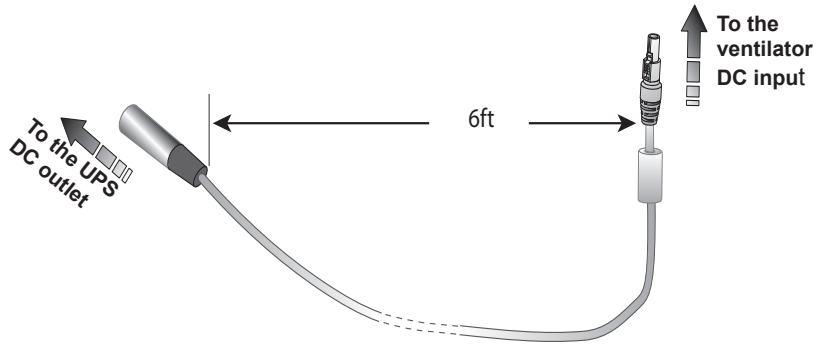
When the fifth (last) LED flashes on the UPS panel, the battery is depleted and must be connected to an AC power source for recharging.

NOTE

If after synchronizing and recharging, three or less of the five LEDs are illuminated, or if the battery backup time is noticeably shorter than normal, the battery has degraded to the state where it requires replacement.

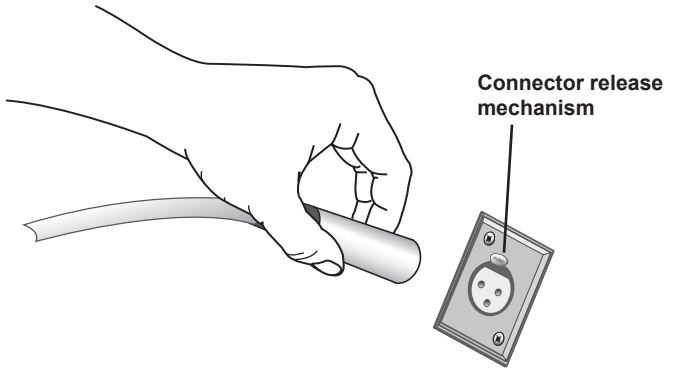
Connecting to the Ventilator

The Universal Power Supply (UPS) is supplied with a DC cord for connection to the ventilator. The DC cord is six feet (1.8 m) long and has a non-interchangeable locking connector on each end. On one end is a three-pin male connector for connection to the UPS and on the other, is a four-pin male jack with a locking tab for connection to the ventilator.



Insert the three-pin connector into to the receptacle on the front of the UPS as shown in the illustration below. The four-pin connector attaches to the DC power input of your ventilator. For connectivity options and associated power supply alarms on the ventilator, refer to the operator's manual that was supplied with your model. Make sure that both ends of the DC cable are positively locked into their respective sockets before powering up the ventilator.

To release the UPS connector, press the metal tab shown below on the UPS. To release the ventilator connector, press the plastic release tab on the connector itself



CAUTION

Possible equipment damage - To avoid damaging the ventilator or the UPS power connections be sure to press their respective releases before removing.